THAT WHICH IS CLAIMED IS:

1. An integrated circuit capacitor, comprising:

a first capacitor electrode on a semiconductor substrate, said first capacitor electrode comprising a recrystallized amorphous silicon layer having a first concentration of first conductivity type dopants therein, and a hemispherical grain (HSG) silicon surface layer on the recrystallized amorphous silicon layer, said HSG silicon surface layer having a second concentration of first conductivity type dopants therein which is greater than the first concentration;

a diffusion barrier layer on the HSG silicon surface layer;

a dielectric layer on the diffusion barrier layer; and

a second capacitor electrode on the dielectric layer.

2. The integrated circuit capacitor of Claim 1, wherein the diffusion barrier layer comprises a silicon nitride layer having first conductivity type dopants therein; and wherein the dielectric layer comprises tantalum oxide.

3. The integrated circuit capacitor of Claim 2, wherein the silicon nitride layer comprises a composite of a first silicon nitride layer formed by rapid thermal nitridation (RTN) and a second silicon nitride layer formed by chemical vapor deposition (CVD).

4. The integrated circuit capacitor of Claim 2, wherein the tantalum oxide layer comprises a composite of a plurality of densified tantalum oxide layers.